```
import pandas as pd
import numpy as np
\label{eq:df-pd-def} $$ df=pd.DataFrame(np.random.randn(5,3),index=['a','c','e','f','h'],columns=['one','two','three']) $$ $$ df=pd.DataFrame(np.random.randn(5,3),index=['a','c','e','f','h'],columns=['a','two','three']) $$ $$ df=pd.DataFrame(np.random.randn(5,3),index=['a','c','e','f','h'],columns=['a','two','three']) $$ $$ df=pd.DataFrame(np.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.random.ran
df=df.reindex[('a','b','c','d','e','f','g','h')]
print("Original DataFrame with NaN\n",df)
print("\n")
print("Dropped DataFrame\n",df.dropna())
print("\n")
 \rightarrow
                TypeError
                                                                                                                                                   Traceback (most recent call last)
                Input In [3], in <cell line: 4>()
                                  2 import numpy as np
                                  3 df=pd.DataFrame(np.random.randn(5,3),index=['a','c','e','f','h'],columns=['one','two','three'])
                ----> 4 df=df.reindex[('a','b','c','d','e','f','g','h')]
5 print("Original DataFrame with NaN\n",df)
                                  6 print("\n")
                TypeError: 'method' object is not subscriptable
\label{eq:df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-df-pd-
df=df.reindex(['a', 'b', 'c'])
print ("Original DataFrame:\n",df)
print("\n")
print ("Nal replaced with'0':\n")
print(df.fillna(0))
 → Original DataFrame:
                                            one
                                                                          two
                                                                                                      three
                a -0.975012 0.493911 -0.569574
                                        NaN
                                                                      NaN
                                                                                                        NaN
                c -0.453400 -1.353737 0.094560
                Nal replaced with'0':
                                        one
                                                                        two
                                                                                                  three
                a -0.975012 0.493911 -0.569574
                b 0.000000 0.000000 0.000000
                c -0.453400 -1.353737 0.094560
df=pd.DataFrame({'one':[10,20,30,40,50,2000], 'two':[1000,0,30,40,50,60]})
print("\nOriginal DataFrame:\n",df)
print("\n DataFrame with replaced values:\n")
print(df.replace({1000:10,2000:60,40:400,0:100}))
 →
                Original DataFrame:
                               one
                                                 two
                0
                               10 1000
                                20
                1
                                                   30
                                30
                                                   40
                3
                                40
                4
                               50
                                                   50
                5
                       2000
                                                   60
                  DataFrame with replaced values:
                         one two
                0
                                          10
                          10
                            20 100
                1
                            30
                                            30
                3
                        400
                                        400
                4
                           50
                                            50
                5
                            60
                                            60
df = pd.DataFrame(np.random.randn(5,3),index=['a','c','e','f','h'],columns=['one','two','three'])
df=df.reindex(['a','b','c','d','e','f','g','h'])
print("Original DataFrame:\n",df)
print("\nNaN-with True fill:\n")
print(df['one'].isnull())
 → Original DataFrame:
                                            one
                                                                             two
                                                                                                      three
                a -1.567682 0.145448 0.925353
                b
                                        NaN
                                                                       NaN
                                                                                                        NaN
                С
                        0.820785 -1.178903
                                                                                         0.053328
                                         NaN
                                                                         NaN
                                                                                                         NaN
```

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10/22/24, 10:32 PM
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```
e 1.029534 1.007350 1.149076
    f 1.468017 0.127269 0.141759
           NaN
                     NaN
                               NaN
    g
    h 0.589724 0.037105 -0.264997
    NaN-with True fill:
         False
          True
    b
         False
    С
    d
          True
    e
         False
         False
          True
    g
         False
    Name: one, dtype: bool
df = pd.DataFrame(np.random.randn(5,3),index=['a','c','e','f','h'],columns=['one','two','three'])
df=df.reindex(['a','b','c','d','e','f','g','h'])
print("Original DataFrame:\n",df)
print("\nNaN- Filled with Forward values:\n")
print(df.fillna(method='pad'))
print("\nNaN- Filled with Background values:\n")
print(df.fillna(method='bfill'))
→ Original DataFrame:
                             three
             one
                      two
    a -0.547173 -1.310615 -0.474754
           NaN
                    NaN
    c -1.579731 -1.053280 1.337034
    d
           NaN NaN
                           NaN
    e 0.939925 1.282000 0.410530
    f -1.744501 0.183721 -0.921692
           NaN
                     NaN
                               NaN
    h -1.341303 -0.048076 0.530049
    NaN- Filled with Forward values:
            one
                     two
    a -0.547173 -1.310615 -0.474754
    b -0.547173 -1.310615 -0.474754
    c -1.579731 -1.053280 1.337034
    d -1.579731 -1.053280 1.337034
    e 0.939925 1.282000 0.410530
    f -1.744501 0.183721 -0.921692
    g -1.744501 0.183721 -0.921692
    h -1.341303 -0.048076 0.530049
    NaN- Filled with Background values:
                      two
            one
    a -0.547173 -1.310615 -0.474754
    b -1.579731 -1.053280 1.337034
    c -1.579731 -1.053280 1.337034
    d 0.939925 1.282000 0.410530
    e 0.939925 1.282000 0.410530
    f -1.744501 0.183721 -0.921692
    g -1.341303 -0.048076 0.530049
    h -1.341303 -0.048076 0.530049
```